## **CLAIMS**

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- 1. A compound for vaccination of an animal comprising (i) a moiety which selectively binds to a dendritic cell in the animal but which moiety does not naturally occur in the animal and (ii) an antigen.
- 2. A compound according to Claim 1 wherein the moiety selectively binds to a pattern recognition receptor on a dendritic cell.
- 10 3. A compound according to Claim 2 wherein the pattern recognition receptor is DC-SIGN.
  - 4. A compound according to Claims 1 or 2 wherein the moiety which selectively binds is a protein.
  - 5. A compound according to Claim 4 wherein the moiety which selectively binds is any one of HIV gp120, the LAM protein of *Mycobacterium tuberculosis* or a glycoprotein of Ebola virus, or parts thereof.
    - 6. A compound for vaccination of an animal comprising (i) a moiety selected from any of HIV gp120, the LAM protein of *Mycobacterium tuberculosis* or a glycoprotein of Ebola virus, or parts thereof, and (ii) an antigen.
    - 7. A compound according to any one of the preceding claims wherein the antigen is a polypeptide.

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- 8. A compound according to any one of the preceding claims wherein the antigen is a molecule associated with a disease of the animal or part or variant of such a molecule.
- 5 9. A compound according to any one of the preceding claims wherein the antigen comprises two or more molecules associated with a disease of the animal or parts or variants of such molecules.
- 10. A compound according to Claims 8 or 9 wherein the antigen is an antigenic component of a pathogen or a tumour or an antigenic part or variant of such a component.
  - 11. A compound according to Claim 10 wherein the pathogen is any of a bacterium, virus, fungus, protozoa or helminth.
  - 12. A compound according to Claim 11 wherein the antigen is an antigenic component of a pathogen selected from pathogens associated with OIE list A diseases, or a part or variant of such a component.

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- 20 13. A compound according to any one of the preceding claims wherein the moiety and the antigen are covalently linked.
  - 14. A compound according to any one of the preceding claims wherein the moiety which selectively binds, and the antigen, each comprise a polypeptide and both are present in the same polypeptide chain.
  - 15. A nucleic acid molecule encoding a compound according to Claim 14.

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- 16. An expression vector comprising a nucleic acid molecule according to Claim 15.
- 17. A host cell comprising a nucleic acid molecule according to Claim
  15 or an expression vector according to Claim 16.
  - 18. A vaccine comprising a compound according to any one of Claims 1 to 14 or a nucleic acid molecule according to Claim 15.
- 10 19. A vaccine according to Claim 18 further comprising an adjuvant.
  - 20. A compound according to any one of Claims 1 to 14 or a nucleic acid molecule according to Claim 15 for use in medicine.
- 15 21. A pharmaceutical composition comprising a compound according to any one of Claims 1 to 14 or a nucleic acid molecule according to Claim 15 and a pharmaceutically acceptable carrier.
- 22. A method of immunising an animal against a disease comprising the step of administering to the animal a compound according to any one of Claims 1 to 14 or a nucleic acid molecule according to Claim 15.
  - 23. A method of combating a disease in an animal comprising the step of administering to the animal a compound according to any one of Claims 1 to 14 or a nucleic acid molecule according to Claim 15.

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24. The method according to any one of Claims 22 or 23 wherein the disease is one caused by a pathogen.

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- 25. The method according to Claim 24 wherein the pathogen is any of a bacterium, virus, fungus, protozoa or helminth.
- 26. The method according to Claim 25 wherein the pathogen is one associated with OIE List A diseases.
  - 27. The method according to any one of Claim 22 or 23 wherein the animal is a mammal.
- 10 28. The method according to any one of Claims 22 to 27 wherein the animal is a companion animal or farm animal.
  - 29. The method according to any one of Claims 27 or 28 wherein the animal is a cow, sheep, horse, pig, goat, dog, cat or rabbit.
  - 30. Use of a compound according to any one of Claims 1 to 14 or a nucleic acid according to Claim 15 in the manufacture of a medicament for combating a disease in an animal.

- 31. Use of a compound according to any one of Claims 1 to 14 or a nucleic acid according to Claim 15 in the manufacture of a vaccine for immunising an animal.
- 32. Use according to Claims 30 or 31 wherein the disease is one caused by a pathogen.
  - 33. Use according to Claim 32 wherein the pathogen is any of a bacterium, virus, fungus, protozoa or helminth.

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- 34. Use according to Claim 33 wherein the pathogen is one associated with OIE List A diseases.
- 35. Use according to Claims 30 or 31 wherein the animal is a mammal.

36. Use according to Claims 30 or 31 wherein the animal is a companion animal or farm animal.

- 37. Use according to Claims 35 or 36 wherein the animal is a cow, sheep, horse, pig, goat, dog, cat or rabbit.
  - 38. A method of making a compound according to Claim 1 or 6 comprising linking the said moiety and the said antigen.
- 15 39. A method of making a compound according to Claim 14 which comprises a polypeptide, said method comprising (i) culturing host cell according to Claim 17 which expresses said polypeptide and (ii) isolating said polypeptide.
- 40. A method of making a nucleic acid according to Claim 15 comprising linking a nucleic acid molecule which encodes a moiety which selectively binds to a dendritic cell and a nucleic acid molecule which encodes an antigen.
- 41. A nucleic acid molecule comprising (i) a portion which encodes a moiety which selectively binds to a dendritic cell and (ii) an insertion point for insertion of a polynucleotide encoding an antigen wherein when said polynucleotide is inserted into said insertion point, said nucleic acid molecule encodes a compound according to Claim 14.

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- 42. The nucleic acid according to Claim 41 wherein said nucleic acid encodes a moiety which selectively binds to a pattern recognition receptor on a dendritic cell.
- 5 43. The nucleic acid according to Claim 42 wherein the recognition receptor is DC-SIGN.
  - 44. The nucleic acid according to Claims 41 or 42 wherein the moiety which selectively binds is any one of HIV gp120, the LAM protein of *Mycobacterium tuberculosis* or a glycoprotein of Ebola virus.
  - 45. A method of determining whether an animal has been administered a compound according to Claim 1, the method comprising determining whether the animal has had an immune response to said moiety which selectively binds to a dendritic cell.
  - 46. A method according to Claim 45 comprising the further step of determining whether the animal has had an immune response to the antigen present in said compound.

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- 47. A kit of parts comprising (i) a compound according to any one of Claims 1 to 14 or a nucleic acid molecule according to Claim 15 and (ii) means for detecting an immune response to the moiety present in said compound which selectively binds to a dendritic cell, and/or (iii) means for detecting an immune response to the antigen present in said compound.
- 48. A kit of parts according to Claim 47 wherein if present part (ii) comprises all, or a portion of, said moiety which binds to an antibody raised against said moiety and part (iii) comprises all, or a portion, of said antigen which binds to an antibody raised against said antigen.

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49. A kit of parts comprising (i) means for detecting an immune response to an animal disease antigen and (ii) means for detecting an immune response to a moiety which selectively binds to a dendritic cell.

50. A kit of parts according to any one of Claims 47 to 49 wherein the means for detecting an immune response is an ELISA.

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51. Any novel method of vaccinating an animal wherein the sovaccinated animal can be distinguished from a naturally infected animal as described herein.